

ENGINEERING INVENTIONS.

Mr. De Witt C. Cumings, of Carthage, Jefferson County, N. Y., is the patentee of an improved counter shaft, including an independent short shaft in line with the counter shaft, intended to secure better alignment, do away with the ordinary loose pulley, and provide means for better lubrication.

A bearing for the spindles of amalgamating pans has been patented by Mr. Andrew Wallace, of Leadville, Col. The invention covers an improved contrivance of devices for centering and tightening the sliding jackets of the grinding mullers, with a spindle of angular or flat sided shape, on which the hollow space of the jacket fits, with adjusting wedges and screws for centering and tightening.

A car coupling has been patented by Mr. Hugh Graham, of Dartmouth, Nova Scotia, Canada. There are sliding blocks and springs in the sockets of the drawheads, to hold the links up level and to hold up the coupling pins for self-coupling, the blocks having spring latches so they may be easily set for holding up either the links or pins, with various other improvements, whereby the cars may be coupled or uncoupled without going between them.

A car coupling has been patented by Mr. Frederick E. Grothaus, of Boerne, Texas. Two coupling hooks are pivoted on a projection from the bottom of the car, passing through a guide slot, and connected with a vertically movable bar for raising them; the coupling hooks are raised and their free ends pressed together, and when released they swing downward and their free ends are separated to allow the hooks to catch on the front posts of the coupling box on the opposite car.

MECHANICAL INVENTIONS.

A turning machine has been patented by Mr. Albert T. Booth, of Meriden, Conn. This invention consists of a sliding tube in a revolving tube, the latter having a nipple on the end which contains a chuck fixed on the end of the sliding tube, and the sliding tube having bevel projections on its inner end, thus making an improved machine for turning metal or wood.

AGRICULTURAL INVENTIONS.

A hay stacker has been patented by Mr. John M. Coe, of Sloan, Iowa. This invention covers a novel construction and combination of parts to take hay from the ground, elevate it to the desired height, and then drop it upon the stack, to be stowed away by an attendant.

A rice drill has been patented by Mr. Arthur De L. Middleton, of Charleston, S. C. There are seed boxes outside of the wheels, so seeds can be planted along the edges of drains or ditches, all the seed boxes are provided with covers, and there are various novel devices and peculiarities of construction and arrangement.

MISCELLANEOUS INVENTIONS.

A wagon running gear has been patented by Messrs. John B. Spry and Thomas Barry, of Valparaiso, Ind. The invention covers some novel details in the construction and combination of parts, to increase the strength and durability of wagon gearings.

A portable folding parlor bowling alley has been patented by Mr. William M. Goodenough, of Newark, N. J. It is formed of a series of sections hinged or otherwise attached to each other, with a folding box at one end adapted to receive the balls that have been rolled at the pins.

A package and book holder has been patented by Mr. Charles Huff, of St. Louis, Mo. It consists of a combination of right angular wire frame, a spring frame pivoted thereto, a handle, cross piece, and rack, all making a convenient carrier and holder for books and packages.

A baling press has been patented by Mr. Simon P. Harbaugh, of Cumberland, Md. This invention consists of a novel construction whereby the baling of cotton, hay, and other substances is facilitated, and it may also serve as a platform scale to weigh the bales as they are discharged from the press.

A saw handle has been patented by Messrs. Rufus H. and William D. Shumway, of Lebanon Springs, N. Y. In combination with the handles of cross cut saws are plates made to form longitudinal grooves, cross grooves, and locking cavities, with a saw blade holding hook to engage with the walls of either of the cavities, with other novel features.

An ear corn feed regulator has been patented by Mr. Samuel E. Marsh, of Tarkio, Mo. It consists of pronged wheels and a discharging shelf arranged with the chute and hopper of an elevator carrying belt on the hopper of a storage crib, for feeding corn regularly to the buckets of the elevator, or from different sections of the crib.

A trace bearer for pad skirts has been patented by Mr. Simmons D. Taylor, of Carthage, N. Y. The bearer consists of an elongated loop or metal frame, by which the trace is prevented from wearing off the skirt, and the bearer will last longer than the usual trace bearer, which is facilitated by a special construction and arrangement of parts.

A saw table gauge has been patented by Mr. Henry L. Hopkins, of Caro, Mich. This is an attachment for scroll sawing machines, a parallel wayed frame, with ways therefor, being secured to the sawing machine in a vertical plane nearly at right angles to the plane of the saw, and a saw table being pivoted in the parallel frame.

A propeller for small boats has been patented by Mr. John B. Kibler, of Minneapolis, Minn. A bottomless socket, with an upright post adjustably secured therein, is attached to the side of the boat, and this is made to sustain a paddle bar to be operated by a crank within the boat, by which the latter may be propelled in any desired direction.

A well bucket fixture has been patented by Mr. Frank L. Howell, of Neligh, Neb. This invention

relates to sheet metal well buckets with a bottom ring supporting the valve, and the valve having a stem on its lower side for raising it, and the improvements cover improved construction and arrangement of the ring and valve.

A corkscrew has been patented by Mr. William E. Alvord, of Appleton, Wis. The corkscrew is formed on the lower end of a rod contained in an externally threaded tube, which in turn is contained in an internally threaded tube, the object being to construct the corkscrew that the cork can be extracted without requiring the operator to pull on the corkscrew.

A friction clutch has been patented by Mr. William H. Rascoe, of Plattsburg, N. Y. In combination with a shaft is a loose wheel with recesses containing rollers, against which blocks rest, which are pressed by springs against the rollers, causing the rollers to bind on the wheel or shaft when the wheel revolves in one direction, but not when revolving in the reverse direction.

A refrigerator has been patented by Mr. Harvey W. Nash, of Amsterdam, N. Y. The ice box or crate, and other parts in the refrigerator, are so suspended that the water, condensing on such parts, as well as the drip water, cannot follow down the connections to dampen the walls of the refrigerator, thus rendering unnecessary the lining of the refrigerator with metal.

A magazine gun has been patented by Mr. Franklin J. Evans, of Iowa Falls, Iowa. The gun has a reciprocating breech block, with a lever pivoted thereto, and a stop bar in the breech cavity; there is also a lifting lever pivoted under the stop bar, with various other improvements, and the gun may also be used with single cartridges without employing the magazine.

A tailor's pressing machine has been patented by Mr. Edward Walker, of New York city. It is made with an ironing board mounted on a carriage adapted to run on a table, above which a smoothing iron is pivoted in a frame suspended from a weighted lever, which can be operated by a foot lever under the table, the double smoothing iron being heated by a gas pipe.

An adjustable trestle has been patented by Mr. Edward Owen, of Jackson, Tenn. It is for the use of carpenters, brick layers, and others, and has a slotted top bar and mortised longitudinal beam below and adapted to receive a frame, whose side bars have internal ratchet teeth, engaged by pawls pivoted to the longitudinal bar; this so fold may be raised or lowered without interfering with the work.

A clasp for holding stockings, shirt sleeves, etc., has been patented by Messrs. Charles F. and William J. Walters, of Gang Mills, N. Y. It is formed of a U-shaped frame, with bends in the shanks, to the inner free ends of which a V-shaped frame is pivoted, adapted to be pressed between the shanks of the other. The same inventors have also patented a stocking supporter and garter, being a device for holding the stocking from a waist belt or corset or other article of clothing. An improved garter has likewise been patented by the same inventors, one which does not cut into the skin or bind on the same, does not tear the clothes, and holds the hose securely.

NEW BOOKS AND PUBLICATIONS.

BRICKS, TILES, AND TERRA COTTA. A Practical Treatise on the Manufacture. By Charles Thomas Davis. Henry Carey Baird & Co., Philadelphia. 8vo, 472 pp. Price \$5.

This covers the manufacture of every important product of clay employed in architecture and engineering, with detailed descriptions of the most modern machines, tools, and appliances, including enameling in polychrome colors. The volume is illustrated by 228 engravings and 6 plates. Brick making is described as conducted in the most ancient times of which we have any record, while the modern processes are treated with the most ample detail, respecting the clays, the preparatory processes, moulding, and burning. The description of brick machines covers those which have been successful in general practice, and there are large views showing the arrangement of the machines, the brick cars, clay elevators, drying sheds, and kilns, in an extensive modern establishment. In the chapter on the enameling and glazing of bricks and tiles, it is stated that the colors now most used for architectural decorations in chromatic brick work are the same, with the exception of buff and brown, as those employed by the ancient Egyptians—red, yellow, blue, sometimes green, and white and black—and the use of oxides in making the modern colors is fully described. Mention is made of the best examples of terra cotta, and its employment and manufacture are treated in detail. Ornamental and art tiles conclude the volume, and of the latter the plates give beautiful illustrations of some of the finest American productions. The extensive and valuable character of this work will be better understood and appreciated by reference to the general contents of the book, which we publish in the advertising columns of our paper this week.

THE ART AGE. Arthur B. Turnure, editor and proprietor, 132 Nassau Street, New York city.

From the title of this new monthly the idea is conveyed that it is a publication probably devoted to paintings, etchings, engravings, etc., which it is not. It is a periodical intended for book collectors and persons having a taste for handsome printing and choice bindings. It is printed on superb paper, and the typography will gladden the heart of any artistic printer.

THE ART INTERCHANGE. Wm. Whitlock, No. 140 Nassau Street, New York city.

This journal, as its name implies, is devoted to decorative art. Every number contains illustrations and designs for persons learning or practicing the art of painting fans, decorating china, embroidering table covers, curtains, and other household articles. Each number contains recipes and directions for mixing and harmonizing colors. The *Art Interchange* fills a niche in journalism which is not overcrowded, and it should have a good patronage.

THE AMATEUR PHOTOGRAPHER, published by the Rochester, N. Y., Optical Company, is an excellent little monograph, admirably adapted for the guidance of beginners in the photographic art. The elaborate details involved in a complete study of photography are omitted, but it gives simple methods and processes whereby any individual of average intelligence can, with a very small outlay, quickly become proficient in taking landscapes, portraits, etc. The author has endeavored "to make photography simple and popular," and treats of his subject in a plain and practical way, from the manipulation of the instrument to the mounting of pictures.

REPRESENTATIVE LONDON JOURNALISTS is the title of a handsome lithograph recently issued by Messrs. Root & Tinker of New York. It is similar in design to a former picture of the same publishers, grouping the leading American journalists, and gives the editors of eleven of the best known London papers from the *Times* to the *Punch*.

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Notice.—To Founders, Manufacturers of Stoves, Agricultural Implements, Machinery, Tools, Shovels, Saws, Files, Chains, etc.: We are in receipt of pamphlets which give full description of how the celebrated Connellsville Coke is made, embracing full instructions how to use it, names of the leading foundrymen using it, with their views and opinions; also a complete map of the Connellsville Coke region. These pamphlets will be sent, post paid, upon application to H. C. Frick Coke Company, Manufacturers of Connellsville Coke, Pittsburg, Pa.

Stephen's Vises. Special size for amateurs. See p. 13. No fisherman wants his attention distracted or his patience tried by acid, nauseating, narcotized tobacco. He wants something fragrant, mild, grateful, pure, inspiring. The tobacco for the fisherman is Blackwell's Durham Long Cut. It can't tantalize, but will insure comfort, patience, and a happy disposition.

For Steam and Power Pumping Machinery of Single and Duplex Pattern, embracing boiler feed, fire and low pressure pumps, independent condensing outfits, vacuum, hydraulic, artesian, and deep well pumps, air compressors. Address Geo. F. Blake Mfg. Co., 44 Washington St., Boston; 97 Liberty St., N. Y. Send for Catalogue.

Quinn's device for stopping leaks in boiler tubes. Address S. M. Co., South Newmarket, N. H.

Wanted.—Machine shop foreman used to first-class engine work. None except those who can give the best of references need apply. Address M. D. Leggett & Co., Cleveland, O.

Cyclone Steam Flue Cleaner saves Fuel, Labor, and Repairs. "Investigate." Crescent Mfg. Co., Cleveland, O. New and Second-hand Lathes, Drills, Planers, Engines, Shafting, etc. Bought, sold, and exchanged. A. G. Brooks, 261 N. 3d St., Philadelphia.

Hercules Water Wheel—most power for its size and highest average percentage from full to half Gate of any wheel. Every size tested and tables guaranteed. Send for catalogue, Holyoke Machine Co., Holyoke and Worcester, Mass.

If you want the best cushioned Helve Hammer in the world, send to Bradley & Company, Syracuse, N. Y.

Mills, Engines, and Boilers for all purposes and of every description. Send for circulars. Newell Universal Mill Co., 10 Barclay Street, N. Y.

Wanted.—Patented articles or machinery to manufacture and introduce. Lexington Mfg. Co., Lexington, Ky.

Brush Electric Arc Lights and Storage Batteries. Twenty thousand Arc Lights already sold. Our largest machine gives 65 Arc Lights with 45 horse power. Our Storage Battery is the only practical one in the market. Brush Electric Co., Cleveland, O.

For Freight and Passenger Elevators send to L. S. Graves & Son, Rochester, N. Y., or 46 Cortlandt St., N. Y. "How to Keep Boilers Clean." Book sent free by James T. Hotchkiss, 86 Tohn St., New York.

Stationary, Marine, Portable, and Locomotive Boilers a specialty. Lake Erie Boiler Works, Buffalo, N. Y.

Railway and Machine Shop Equipment. Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

The Hyatt filters and methods guaranteed to render all kinds of turbid water pure and sparkling, at economical cost. The Newark Filtering Co., Newark, N. J.

Steam Boilers, Rotary Bleachers, Wrought Iron Turn Tables, Plate Iron Work. Tippet & Wood, Easton, Pa. "The Sweetland Chuck." See ad. p. 396.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn. For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

Electrical Alarms, Bells, Batteries. See Workshop Receipts, v. 3, \$2.00. E. & F. N. Spon, 35 Murray St., N. Y.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN Patent agency, 361 Broadway, New York.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. Complete outfit for plating, etc. Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Supplement Catalogue.—Persons in pursuit of information on any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y. Curtis Pressure Regulator and Steam Trap. See p. 12.

Gear Cutting. Grant, 66 Beverly St., Boston.

We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure asbestos goods of all kinds. The Chalmers-Spence Co., 419 East 8th Street, New York.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Emerson's 1884 Book of Saws. New matter. 75,000. Free. Address Emerson, Smith & Co., Beaver Falls, Pa.

Hoisting Engines. Friction Clutch Pulleys, Cut-off Couplings. D. Frisbie & Co., Philadelphia, Pa.

Barrel, Keg, Hoghead, Stave Mach'y. See adv. p. 14. Munson's Improved Portable Mills, Utica, N. Y.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 14.

Blacksmith Drilling Machines for 1/4 to 1/2 inch diameter, \$22.50. Pratt & Whitney Co., Hartford, Ct.

For best low price Planer and Matcher, and latest improved Sash, Door, and Blind Machinery, Send for catalogue to Rowley & Hearnance, Williamsport, Pa. Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 13.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 236.

The Porter-Allen High Speed Steam Engine. Southwark Foundry & Mach. Co., 430 Washington Ave., Phil. Pa.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Notes & Queries

HINTS TO CORRESPONDENTS.

Name and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all, either by letter or mail, each must take his turn.

Special Information requests on matters of personal rather than general interest, and requests for Prompt Answers by Letter, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each. Minerals sent for examination should be distinctly marked or labeled.

(1) E. K. asks: Is a 5 volt incandescent electric lamp equal to 5 candle power? If not, how many candle power is it equal to? A. It would hardly be equal to 5 candle power. The construction of the lamp has much to do with its illuminating power. The exact equivalent of a volt in candle power cannot be stated.

(2) E. H. I. writes: I see in SCIENTIFIC AMERICAN SUPPLEMENT, No. 160, in giving directions for making an induction coil, it directs making the secondary coil in two sections. Will not one do just as well, or almost as well? A. When the coil is made in two sections, there is less danger of internal discharges. If you make your coil continuous, you will have to make the insulation very perfect and secure.

(3) E. V. D. asks: 1. What is the temperature of steam under pressure of one atmosphere, under two atmospheres, three, etc.?

A. 1 atmosphere..... 251°
2 "..... 276°
3 "..... 295°
4 "..... 311°
5 "..... 324°
6 "..... 335°
7 "..... 345°
8 "..... 355°

2. Will "live steam" impart heat more quickly than steam as it is condensing? A. Live steam at high pressures only gives out heat by condensation, unless superheated. The word live only means steam from the boiler, as distinguished from steam from the exhaust.

(4) W. E. S. asks: In order to steer a boat clear of obstacles in a current (particularly in rapids) with which it is going and down which its course lies, is it necessary that there should be a propulsion of the boat independent of that which is caused by the current? In other words, in the case stated, is the rudder obeyed only when the boat is going (by means of steam or other independent agency) at a speed greater than that of the current? A. The boat must go faster (or slower) than the current to be able to influence its course by the rudder.

(5) J. F. P. asks, to settle an "argument," Which will most increase the power of a locomotive 16 inches diameter, 24 inches stroke—to add 1 inch to stroke or 1 inch to the diameter? A. One inch added to the stroke would add one-twenty-fourth to the power, and one inch added to diameter would increase the power one-eighth, or three times as much as adding one inch to the stroke.

(6) B. B. T. writes: We have two sets of boilers, 30 feet apart. No. 1 is 16 feet long, 48 inches diameter, and has twenty-four 0.5 inch tubes. No. 2 are two boilers connected by steam dome and mud drum, 24 feet long, 36 inches diameter, with two 13 inch flues. No. 1 furnishes more steam than we need for engine, and as we carry the same pressure on both sets could we connect by a pipe? If so, what size would you advise, and where connect it? A. You can connect them by a pipe not less than 4 inches diameter, but you must keep your safety valves, gauge cocks, etc., on both sets of boilers the same as if worked separately. There should also be stop valves in the steam pipes, outside the safety valve, so that either set of boilers can be shut off if necessary.

(7) A. C. asks a remedy for the roaring noise produced by the condensation of steam in cold water, the end of the pipe expanding into a coil. A. Have a drain cock at the end of the coil to draw off the condensed water, and not let the steam discharge into the tank, or preferably, place a false bottom across